

WHAT IS CLAIMED IS:

1. An insole for supporting a longitudinal arch and a transverse arch of a plantar surface of a human foot, the insole comprising:

a raised arch support portion having a peripheral contour generally conforming to the longitudinal arch and the transverse arch of the plantar surface of the human foot.

2. An insole in accordance with claim 1, wherein the peripheral contour of the raised arch support portion is defined by a curve having a first endpoint located on a medial edge of the insole generally corresponding to a forwardmost medial point of the longitudinal arch and a second endpoint located rearward of the first endpoint on a medial edge of the insole,

wherein the curve extends forwardly and laterally from the first endpoint through a point generally corresponding to a midway point between a second metatarsal head and a third metatarsal head of the foot, extends rearwardly along a medial edge of a fifth metatarsal of the foot, and extends rearwardly and medially to the second endpoint.

3. An insole in accordance with claim 2, wherein the curve extends across a point generally corresponding to a cuboid of the foot as it extends rearwardly and medially from the fifth metatarsal of the foot to the second endpoint posterior to an Astragalus of the foot.

4. An insole in accordance with claim 1, wherein the peripheral contour of the raised arch support portion is defined by a curve having a first endpoint located on a medial edge of the insole generally corresponding to a forwardmost medial point of the longitudinal arch and a second endpoint located rearward of the first endpoint on a medial edge of the insole,

wherein the curve extends from the first endpoint, through a point generally corresponding to a first metatarsal head of the foot, through a point generally corresponding to a second metatarsal head of the foot, through a point generally corresponding to a third metatarsal head of the foot, through a point generally corresponding to a fourth metatarsal

head of the foot, along an arc substantially tangent to a fifth metatarsal shaft, through a point generally corresponding to a cuboid of the foot, and to the second endpoint.

5. An insole in accordance with claim 1, further comprising a footbed having a peripheral contour generally conforming to a peripheral contour of the plantar surface of the human foot, wherein the raised arch support portion forms part of the footbed.

6. An insole in accordance with claim 1, wherein the raised arch support portion has a maximum height dimension substantially midway between a first metatarsal head and an Astragalus of the human foot.

7. An insole in accordance with claim 6, wherein the maximum height dimension of the raised arch support portion is approximately 0.375 inches greater than a height dimension of the insole.

8. An insole in accordance with claim 1, wherein the raised arch support portion has a maximum height dimension substantially midway between a Tibialis Anticus of the human foot.

9. An insole for supporting a longitudinal arch and a transverse arch of a plantar surface of a human foot, the insole comprising:

a footbed having an upper surface and a lower surface, the upper surface adapted to mate with the plantar surface of the human foot,

wherein the upper surface of the footbed comprises a raised arch support portion having a significant longitudinal and transverse arch topography bounded by a medial edge of the footbed and a peripheral contour beginning at a point on the medial edge of the footbed generally corresponding to a forwardmost point of the longitudinal arch on a medial edge of the foot, extending laterally to a point on the footbed located substantially midway between a second metatarsal head and a third metatarsal head, extending to a point on the footbed generally corresponding to a fourth metatarsal head, extending in a generally posterior direction substantially tangent to a fifth metatarsal shaft, extending medially across a point

generally corresponding to a cuboid of the foot, and terminating at a point on the medial edge of the footbed generally corresponding to a rearmost point of the longitudinal arch on the medial edge of the foot.

10. An insole in accordance with claim 9, wherein the insole has dimensions generally corresponding to a human foot of a predetermined size.

11. An insole in accordance with claim 9, wherein the raised arch support portion has a maximum height dimension relative to the upper surface of the footbed substantially midway between a first metatarsal head and an Astragalus of the human foot.

12. An insole in accordance with claim 11, wherein the maximum height dimension of the raised arch support portion is approximately 0.375 inches high relative to a height of the upper surface of the footbed.

13. An insole in accordance with claim 9, wherein the peripheral contour of the raised arch support portion is curvilinear from the beginning point on the medial edge of the footbed to the terminating point on the medial edge of the footbed.

14. An insole in accordance with claim 9, wherein a peripheral contour of the footbed generally follows a peripheral contour of the plantar surface of the human foot such that the insole is capable of supporting substantially all of the plantar surface of the human foot.

15. An insole in accordance with claim 9, further comprising a surface layer provided on the upper surface of the footbed.

16. An insole in accordance with claim 15, wherein the surface layer is formed of a textile material.

17. An insole in accordance with claim 9, wherein the footbed has a hindfoot region and a forefoot region and is made of a flexible material.

18. An insole in accordance with claim 17, further comprising at least one shock-absorbing portion located at the hindfoot region of the footbed and at least one shock-absorbing portion located at the forefoot region of the footbed.

19. An insole in accordance with claim 18, wherein the lower surface of the footbed is provided with at least one recess in the hindfoot region and at least one recess in the forefoot region in which each of the at least one shock-absorbing portions can be disposed.

20. An insole in accordance with claim 19, wherein each of the at least one shock-absorbing portions has a plurality of grooves formed therein to accommodate deformation of the at least one shock-absorbing portion when a load is applied thereto.

21. An insole in accordance with claim 17, further comprising at least one shock-absorbing portion made of a viscoelastic material.

22. An insole in accordance with claim 21, wherein the footbed is made of an open-celled polyurethane material and the at least one shock-absorbing portion is made of a solid polyurethane material.

23. An insole in accordance with claim 22, wherein the open-celled polyurethane material of the footbed has a hardness value within a range from about 50 Shore 'OOO' to about 30 Shore 'A'.

24. An insole in accordance with claim 22, wherein the open-celled polyurethane material of the footbed has a hardness value within a range from about 30 Shore 'OO' to about 80 Shore 'OO'.

25. An insole in accordance with claim 21, wherein the lower surface of the footbed is provided with at least one recess in which the at least one shock-absorbing portion can be disposed.

26. An insole in accordance with claim 25, wherein the at least one shock-absorbing portion has a plurality of grooves formed therein to accommodate deformation of the at least one shock-absorbing portion when a load is applied thereto.

27. An insole having a hindfoot region and a forefoot region, the insole comprising:

a footbed extending from the hindfoot region to the forefoot region and having an upper surface and a lower surface, the upper surface having a raised arch support portion having a peripheral contour generally conforming to a longitudinal arch and a transverse arch of a human foot;

a first shock-absorbing portion disposed at the hindfoot region of the footbed; and
a second shock-absorbing portion disposed at the forefoot region of the footbed.

28. An insole in accordance with claim 27, wherein the insole has dimensions generally corresponding to a human foot of a predetermined size.

29. An insole in accordance with claim 27, wherein the peripheral contour of the raised arch support portion begins at a point on a medial edge of the footbed generally corresponding to a forwardmost point of the longitudinal arch on a medial edge of the foot, extends laterally to a point on the footbed located substantially midway between a second metatarsal head and a third metatarsal head, extends to a point on the footbed generally corresponding to a fourth metatarsal head, extends in a generally posterior direction substantially tangent to a fifth metatarsal shaft, extends medially across a point generally corresponding to a cuboid of the foot, and terminates at a point on the medial edge of the footbed generally corresponding to a rearmost point of the longitudinal arch on the medial edge of the foot.

30. An insole in accordance with claim 27, wherein the lower surface of the footbed is provided with a recess in the hindfoot region and a recess in the forefoot region such that the first shock-absorbing portion can be positioned in the hindfoot recess and the second shock-absorbing portion can be positioned in the forefoot recess.

31 An insole in accordance with claim 27, further comprising a textile material layer on the upper surface of the footbed.

32. An insole in accordance with claim 27, wherein each of the shock-absorbing portions has a plurality of grooves formed therein for allowing deformation of the shock-absorbing portion when a load is applied thereto.

33. A footwear device comprising:

a sole having an inner surface and an outer surface;

a footwear upper portion attached to the sole, the footwear upper portion and the inner surface of the sole forming a foot-receiving cavity; and

an insole positioned on the inner surface of the sole, the insole comprising a footbed extending from a hindfoot region to a forefoot region and having an upper surface and a lower surface, the upper surface having a raised arch support portion having a peripheral contour generally conforming to a longitudinal arch and a transverse arch of a plantar surface of a human foot;

a first shock-absorbing portion disposed at the hindfoot region of the footbed; and

a second shock-absorbing portion disposed at the forefoot region of the footbed.

34. A footwear device in accordance with claim 33, wherein the peripheral contour of the raised arch support portion begins at a point on a medial edge of the footbed generally corresponding to a forwardmost point of the longitudinal arch on a medial edge of the foot, extends laterally to a point on the footbed located substantially midway between a second metatarsal head and a third metatarsal head, extends to a point on the footbed generally corresponding to a fourth metatarsal head, extends in a generally posterior direction substantially tangent to a fifth metatarsal shaft, extends medially across a point generally corresponding to a cuboid of the foot, and terminates at a point on the medial edge of the footbed generally corresponding to a rearmost point of the longitudinal arch on the medial edge of the foot.

35. A footwear device in accordance with claim 33, wherein the insole extends substantially from a heel wall of the footwear upper portion to a toe wall of the footwear upper portion and from a medial wall of the footwear upper portion to a lateral wall of the footwear upper portion such that the insole is capable of supporting substantially all of the plantar surface of the human foot.

36. A footwear device in accordance with claim 33, wherein the lower surface of the footbed is provided with recesses at the hindfoot region of the footbed and the forefoot region of the footbed, the first shock-absorbing portion being positioned in the recess at the hindfoot region and the second shock-absorbing portion being positioned in the recess at the forefoot region.

37. A footwear device in accordance with claim 33, further comprising a textile material layer on the upper surface of the footbed.

38. A footwear device in accordance with claim 33, wherein each of the first and second shock-absorbing portions has a plurality of voids formed therein adapted to accommodate material deformation of the shock-absorbing portion when a load is applied thereto.

39. A footwear device in accordance with claim 33, wherein the foot-receiving cavity is a partially enclosed compartment having dimensions substantially corresponding to a human foot of a predetermined size.

40. A footwear device in accordance with claim 39, wherein the insole is sized to generally correspond with the dimensions of the foot-receiving cavity and the predetermined size of the human foot.

41. A method for forming a footwear device having a foot-receiving cavity adapted to retain an orthotic insole corresponding to a predetermined foot size, the footwear device comprising:

providing an orthotic insole for supporting a longitudinal arch and a transverse arch of a plantar surface of a human foot, the insole comprising a raised arch support portion having a peripheral contour generally conforming to the longitudinal arch and the transverse arch of the plantar surface of the human foot;

calculating a three-dimensional contour of a foot-receiving cavity of the footwear device corresponding to a foot of the predetermined foot size;

adjusting a height of the three-dimensional contour of the foot-receiving cavity to accommodate a height of the orthotic insole; and

forming the footwear device according to the adjusted three-dimensional contour of the foot-receiving cavity.